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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/595,201 06/16/00 HAYWARD

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EXAMINER

PM82/0301

MICHAEL A. CANTOR, ESQ.
CANTOR COLBURN LLP
88 DAY HILL ROAD
WINDSOR CT 06095

RODRIGUEZ, P

ART UNIT

PAPER NUMBER

3613

DATE MAILED:

03/01/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.
09/595,201

Applicant(s)
Hayward et al.

Examiner
Pam Rodriguez

Group Art Unit
3613

- ☐ Responsive to communication(s) filed on _____.
- ☐ This action is **FINAL**.
- ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

- ☒ Claim(s) 1-19 is/are pending in the application.
- Of the above, claim(s) _____ is/are withdrawn from consideration.
- ☐ Claim(s) _____ is/are allowed.
- ☒ Claim(s) 1-11 and 13-19 is/are rejected.
- ☒ Claim(s) 12 is/are objected to.
- ☐ Claims _____ are subject to restriction or election requirement.

Application Papers

- ☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.
- ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- ☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- ☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- ☒ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been
- ☒ received.
- ☐ received in Application No. (Series Code/Serial Number) _____.
- ☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

- ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- ☒ Notice of References Cited, PTO-892
- ☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 5
- ☐ Interview Summary, PTO-413
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371© of this title before the invention thereof by the applicant for patent.

2. Claims 16-19 are rejected under 35 U.S.C. 102(e) as being anticipated by Nisley.

Regarding Claim 16, Nisley discloses a brake assembly 12 for a motor 10 (see Figures 1 and 4) having all the features of the instant invention including: a plurality of brake elements 34,46, an electromagnetic actuator 24 arranged to permit control of a compressive load applied to the brake elements 34,46, wherein the actuator includes a winding 24 located such that the brake elements 34,46 are accessible without requiring removal of the winding from the motor 10 (see column 4 lines 21-27 and note loosening of bolts 26 would provide accessibility to the brake elements without removal of the winding structure, see also Figure 1).

Regarding Claim 17, Nisley further discloses that the winding 24 is located between the brake elements 34, 46 and the motor 10 (see Figure 4).

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Regarding Claim 18, Nisley discloses that the brake elements 34, 46 form part of a module 12 which can be removed from the motor 10 and the remainder of the brake assembly as a unit (again via the loosening of bolts 26).

Regarding Claim 19, Nisley discloses that the module 12 includes an armature 40 forming part of the actuator 24 (see column 4 lines 36-38).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103© and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-11 and 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nisley in view of Burgdorf et al.

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Regarding Claims 1-3, Nisley discloses a brake assembly 12 for a motor 10 (see Figures 1 and 4) having most all the features of the instant invention including: a stack of brake elements 34/46 (note claim 5 where the stack is defined as comprising just two brake elements), at least one 34 of which is rotatable with an output shaft of the motor 10 (see column 4 lines 31-32), and at least one 46 of which is non-rotatable relative to a housing 20 (see column 4 lines 43-45), and an actuator arrangement 24 for controlling the magnitude of a compressive load applied to the brake elements 34,46.

However, Nisley does not disclose that the brake elements are provided, at least in part, with a surface coating which raises the coefficient of friction of the brake elements to a value greater than .2, to a value of at least .5 falling in the range of .5 to .6.

Burgdorf et al are relied upon merely for their teachings of a brake assembly (see Figures 1 and 2) having a braking element 1 provided with a surface coating which raises the coefficient of friction of the braking element (see the abstract and column 1 line 58 - column 2 line 51).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have provided the brake elements of Nisley with a surface coating which raises the coefficient of friction of the brake elements as taught by Burgdorf et al to increase the overall performance of the brake assembly. By improving the coefficient of friction of the braking element to be greater than .2 or between .5 and .6, the wear life of the braking elements would be increased and thus the brake assembly would operate longer and more efficiently.

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Regarding Claim 4, Burgdorf et al further disclose that the surface coating is tungsten carbide forming a layer of thickness on the braking element (see the abstract and column 2 lines 58-61).

However, Burgdorf et al do not disclose that the layer of thickness falls within the range of .64 mm to 1.27 mm.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have applied the coating of Nisley, as modified, in a layer of thickness falling within the range of .64 mm to 1.27 mm dependent upon the desired friction characteristics of the braking elements. By applying a thicker layer of coating to the braking elements, the better the overall frictional wear characteristics will be.

Regarding Claim 5, Nisley, as modified, further discloses that the stack of brake elements 34, 46 takes the form of a first brake element 34 which is rotatable with the output shaft of the motor in use (see column 4 lines 31-32) and a second brake element 46 which is non-rotatable relative to the housing 20 (see column 4 lines 43-45).

Regarding Claim 6, Nisley, as modified, discloses that the second brake element 46 forms part of a cap forming part of the housing 20 (see Figure 4, where element 46 is readable as acting as a cover/cap for the assembly).

Regarding Claim 7, Nisley, as modified, discloses an arrangement 42 for preventing contact between the first and second brake elements 34,46 (see column 4 line 63-column 5 line 7) when the actuator 24 is actuated.

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Regarding Claim 8, Nisley, as modified, discloses that the arrangement for preventing contact between the first and second brake elements includes a secondary spring 42 for biasing the first brake element 34 away from the second brake element 46 (see column 4 line 63-column 5 line 7), wherein the secondary spring 42 provides a biasing force which exceeds the weight of the first brake element 34 (inherently true to maintain the biasing force).

Regarding Claim 9, Nisley, as modified, discloses that the actuator 24 is an electromagnetic actuator arranged to act against a primary spring 44, the spring force due to the secondary spring 42 being sufficient to overcome the weight of the first brake element 34 but being less than the spring force due to the primary spring (see column 4 lines 63-66).

Regarding Claim 10, Nisley, as modified, discloses that the arrangement for preventing contact between the first and second brake elements also comprises a stop member 48 arranged to limit axial movement of the first brake element 34 relative to an armature 40 forming part of the actuator 24 (see column 4 line 66- column 5 line 22).

Regarding Claim 11, Nisley, as modified, discloses that the stop member takes the form of a shoulder 52 provided on a rotor shaft 14 which is rotatable with the output shaft of the motor 10 (see Figure 4).

Regarding Claim 13, Nisley, as modified, discloses that at least one of the brake elements comprises a brake disc 34.

Regarding Claim 14, Nisley, as modified, discloses that the actuator comprises an electromagnetic actuator 24 arranged to act against a primary spring 44.

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Regarding Claim 15, Nisley, as modified, discloses that the electromagnetic actuator includes a winding 24 located such that the brake elements are accessible without requiring removal of the winding from the motor (see column 4 lines 21-27 and claim 16 above).

Allowable Subject Matter

5. Claim 12 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Sommer and Maurice both disclose brake assemblies having brake element structure similar to applicant's.

Neff discloses a brake assembly having brake element and spring structure similar to applicant's.

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7. Any inquiry concerning this communication should be directed to Pam Rodriguez at telephone number (703) 308-1113.

Pr

February 23, 2001


PAM RODRIGUEZ
PATENT EXAMINER